DOCUMENT RESUME

ED 283 711 SE 048 246

AUTHOR Wood, David S.; Wood, Diane Walton
TITLE How To Plan a Conservation Education Program.
INSTITUTION Fish and Wildlife Service (Dept. of Interior), Washington, D.C.; International Inst. for Environment and Development, Washington, DC.
PUB DATE Jul 87
NOTE 49p.
PUB TYPE Guides - Non-Classroom Use (055)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Community Education; *Community Programs; Conservation (Environment); *Conservation Education; Environmental Education; International Cooperation; *International Educational Exchange; Models; Natural Resources; Physical Environment; *Program Development; Program Guides; Quality of Life
IDENTIFIERS *Environmental Education Programs

ABSTRACT

Designed to provide assistance to natural resource managers in the preparation of conservation educator programs and materials, this manual describes specific procedures for developing programs that would have significant environmental impact. Five steps are identified and explained under separate chapter headings. Each chapter concludes with a series of questions that serve to assess that step before the next procedure is undertaken. These steps include: (1) assessing the environmental situation (identifying the technical solution); (2) identifying the audience (considering frequently targeted groups); (3) identifying the message (offering suggestions in planning the program and selecting the program's content); (4) selecting an educational strategy (reviewing commonly used strategies); and (5) evaluation (providing guidelines and identifying sources of information for evaluation). (ML)

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HOW TO PLAN A CONSERVATION EDUCATION PROGRAM

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INTERNATIONAL INSTITUTE FOR ENVIRONMENT AND DEVELOPMENT
UNITED STATES FISH AND WILDLIFE SERVICE

HOW TO PLAN A CONSERVATION EDUCATION PROGRAM

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IIED INTERNATIONAL INSTITUTE FOR ENVIRONMENT AND DEVELOPMENT

UNITED STATES FISH AND WILDLIFE SERVICE

JUL 1987

This manual was cooperatively prepared with funds and technical assistance from the Office of International Affairs of the United States Fish and Wildlife Service (FWS) and from the International Institute for Environment and Development (IIED). Its production was made possible by support from the J.N. Pew, Jr. Charitable Trust and the Public Welfare Foundation. The manual was published simultaneously in English and Spanish. The translation to Spanish was provided by Charles H. Roberts.

The authors originally wrote a manual for the U.S. Peace Corps' Office of Information Collection and Exchange (ICE) as an aid to U.S. Peace Corps volunteers in the planning and management of conservation education programs. At the special request of FWS and IIED, Diane and David Wood adapted the manual for use by a wider audience.

Illustrators: Heather Bentz, pp. 12, 13, 20, 24, 29, 31, 33, 45
Phyllis A. Harris, pp. 3, 7, 15, 26, 35, 38

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PREFACE

As sustainable development and conservation of biological diversity have arisen as important issues for the 1980's, it has become increasingly clear that economic and social progress must be built on a development strategy that manages natural resources to ensure their long-term availability. In most cases, effective resource management depends on the support and cooperation of an informed and motivated public.

Concerns about sustainable development and effective resource management are shared by the International Institute for Environment and Development (IIED) and the United States Fish and Wildlife Service (FWS). Each year, we receive many requests for assistance from natural resource managers and non-governmental organizations (NGOs) who are developing conservation education programs in a variety of countries. Frequently the requests come from people who are undertaking conservation education initiatives for the first time and the only resources they have available are materials produced for countries other than their own. To address this situation, IIED and FWS decided to collaborate on the publication of a guide to help natural resource managers and NGOs prepare conservation education programs and materials that are uniquely their own and specific to their situations.

IIED's field programs work with developing country governments and private citizens' groups to help increase their abilities and improve their natural resources management. IIED/Earthscan publications such as How to Plan a Conservation Education Program provide our colleagues with practical tools to use in their work toward these common goals.

The FWS has a wide variety of international responsibilities under numerous treaties, statutes and agreements. Within the Service, international activities are coordinated by the Office of International Affairs. In

addition to providing overall coordination and support for Service international efforts, International Affairs responds to technical assistance requests from foreign countries, provides training in wildlife management, and manages specific projects in wildlife research, conservation education, and enhancement of biological diversity abroad.

We wish to express our appreciation to those individuals who assisted in this publication, particularly those colleagues who reviewed the manuscript to ensure its relevance and adaptability in many parts of the world: Maher Abu Jafar, Omar Rahamat and Coppelia Shahin of the Royal Society for the Conservation of Nature in Jordan, Erick Roth of the Centro Interdisciplinario de Estudios Comunitarios in Bolivia, Marco A. Encalada of Fundacion Natura in Ecuador and Rod Sterne of Green Indonesia.

We would also like to thank the following people whose contributions are greatly appreciated: Elizabeth Schueler, Jennifer Gardner, Diana Page, and Alberto Vargas.

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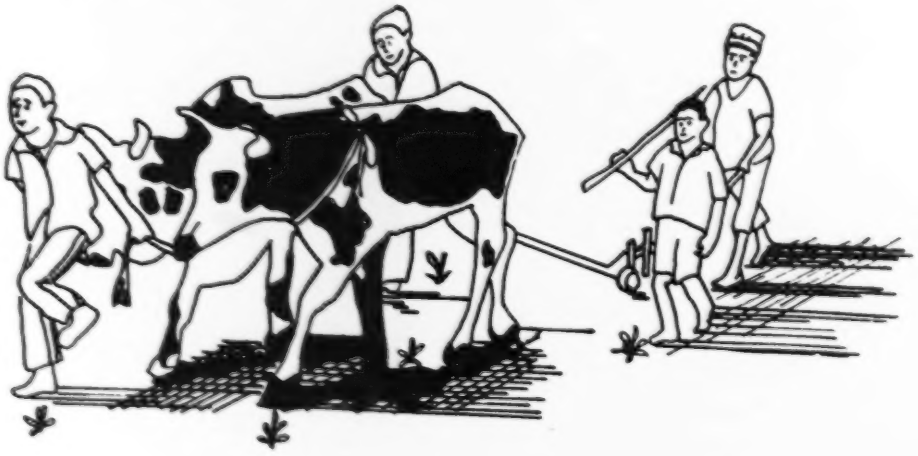
INTRODUCTION

While striving to improve their living conditions, people throughout the world, paradoxically, reduce their prospects for a better life. When people harvest or use the earth's natural resources -- its soil, forests, air, water, minerals, wildlife, etc. -- they often reduce the earth's supplies of these resources and its ability to recreate them. Thus, in the rush to develop, people frequently damage the environment's capacity to supply their needs and wants. Soil is eroding, forests and wildlife are disappearing, water and air supplies are becoming polluted with industrial and human wastes. These and other environmental problems occur worldwide, but unfortunately, people have not had much success in resolving them.

The difficulty is not due to a lack of understanding of the causes or lack of solutions. To control deforestation, people can either reduce the rate at which trees are cut, or they can plant seedlings. To reduce erosion, people can plow on the contour, employ stripcropping or plant windbreaks. To prevent wild animals from disappearing, people can control how many are harvested and maintain the animal's habitats.

Yet, many environmental problems are left unsolved. Sometimes it is because people are unaware of an environmental problem, or although aware, they do not know how much it affects them or how it can be resolved. Even when people understand the significance of an environmental problem and know of solutions, they may feel the action to be taken is not worth the financial and other sacrifices required.

Consequently, governments settle landless people on fragile mountain slopes, cattle ranchers replace rainforests with pasture, peasant farmers plow up and down hills, and hunters kill endangered wild cats for their furs because, for all they see, any associated environmental damage is a price worth paying for the benefits they receive. Confronted by considerable financial or political pressures, people do what seems to serve their best interests. **They may escape the consequences in the short term, but if they reduce the environment's ability to provide for tomorrow's needs, their long-term interests will suffer.**



Resource managers, scientists, and policy makers must develop strategies for managing the earth's resources that are more attractive economically, politically, socially, and culturally as well as more productive. Meanwhile, those who derive their living directly from natural resources -- farmers, herdsmen, fishermen, hunters -- must work closely with the specialists to ensure that management strategies respond to local concerns. But this addresses only part of what must be done. As appropriate resource management strategies are developed, the people who will implement them must be involved. People from all walks of life -- government leaders, farmers, rural villagers, the general public, schoolchildren, members of non-governmental organizations -- must all contribute if sound natural resource management endeavors are to succeed. The most reliable way to enlist this cooperation is to demonstrate why conservation is in their best interest. This is the role of conservation education.

The goal of conservation education is to improve natural resource management and reduce environmental damage. It tries to: (1) help people become aware of the value of natural resources and the ecological processes that maintain them; (2) show people what threatens the well-being of their environment and how they can contribute to its improved management; (3) motivate people to do what they can to improve environmental management. The task of meeting all three of these objectives distinguishes conservation education from other types of instruction.

Conservation education, then, is needed whenever one wants to see a change in how the environment is used. It is a practical tool to achieve observable results. Conservation education programs frequently identify attitude change as their ultimate goal. Attitude change, however, is only the beginning of improved natural resource management. New attitudes do not always lead to new behavior; therefore, the conservation educator's task is not over unless people channel their new attitudes toward appropriate environmental action. If they do, then the conservation education program is a success.

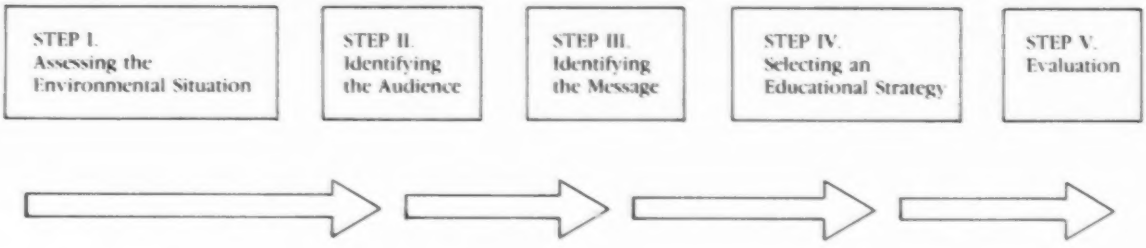
The purpose of this manual is to describe procedures that conservation educators can use to design programs that have significant environmental impact and that match the people's concerns and traditions. There are five steps that must be followed if conservation education programs are to be effective. These steps are:

1) **Identifying specific environmental problems that the education program will focus upon and finding the technical solutions to these problems;**
2) **Identifying and becoming acquainted with the intended audience of the program;**
3) **Working out the message to be directed at this audience;**
4) **Choosing the means to communicate this message;**
5) **Evaluating and altering the program when necessary.**

This manual discusses how to successfully complete these steps and explains why it is necessary to do so. Each chapter ends with a series of questions to help the educator ensure that each step has received sufficient consideration before the next one is tackled.

The procedure is logical and simple; so much so, in fact, that the reader may wonder why we have bothered to set it down here. It has been our experience that conservation education programs are often designed and implemented without precise planning. Their goals and objectives have been weakly defined; their target audiences have been talked to but not heard; their content and strategies have been randomly selected; their evaluation criteria have not been established. As a result, conservation education programs have often been ineffective in bringing about change.

We believe that by employing the following techniques, the commitment, energy, and creativity of conservation educators around the world can be applied effectively to encourage the wise management of the planet's environment. There is no greater need.



STEP I. ASSESSING THE ENVIRONMENTAL SITUATION

The first two tasks in designing a conservation education program are to select 1) the environmental problems to focus upon and 2) the measures necessary to solve them. The problems and solutions chosen for the conservation education program will determine the target audience, methods, content, and the criteria to evaluate it. Thus, these first tasks must be considered carefully.

IDENTIFYING THE ENVIRONMENTAL PROBLEM

The conservation educator can expect to find more environmental problems than can be dealt with in any one program. Time and resources, personnel, funding, equipment, etc. will inevitably be limited, so priorities have to be set according to the community's needs. Is the first concern getting people to plow on the contour or to pick up litter? Should people first know how to use an insecticide properly, or learn basic ecological principles? At some point, certain issues will have to be chosen over others.

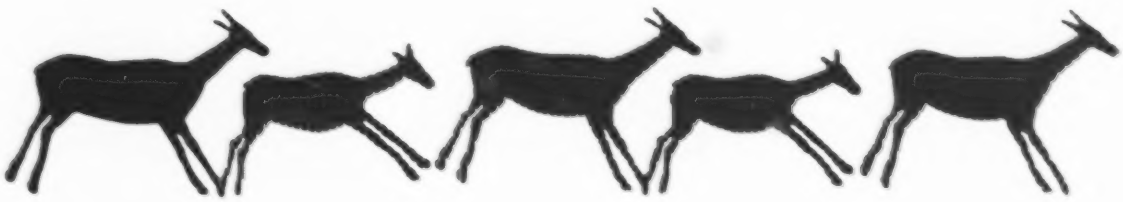
When not focused on a specific environmental problem, the educator has no sound criteria to use in selecting program content, target audiences, and methods of communication. The educator will have a difficult time explaining why some target audiences, educational content, and communication strategies were chosen instead of others.

Conservation education programs that help solve an environmental problem are likely to receive financial and other kinds of support. While a program intended to change people's attitudes may be desirable, it is not usually considered to be a priority item for funding. Both government and private donors want to see some results from their contributions.

IDENTIFYING TECHNICAL SOLUTIONS

Once the problems have been pinpointed, the educator must then identify their technical solutions. What action could people take to solve the problems? These actions may be simple, like planting trees, or complicated, like putting into place a comprehensive regional management plan. Whatever they are, motivating people to implement them will be the goal of the education program.

An environmental problem must have a feasible solution. If an educator



cannot realistically expect people to contribute to solving an environmental problem, then that problem should not be the focus of the education effort because no positive impact can be achieved. For example, pollution from automobile exhaust is a growing problem in many large cities. Showing people how this pollution harms their health may raise interest in the subject, but often pollution control devices are economically impractical. Such an education program would produce aware people, but they would become frustrated by the debate over who would pay for the devices, leading to a stalemate. What then, will have been the justification for using scarce money, time, and personnel on the program? Could these resources have been more productively used elsewhere?

INVOLVING PARTICIPANTS IN DEVELOPING SOLUTIONS

Conservation educators must lead the process of identifying practical solutions. Too often plans are developed in central offices and then presented to local communities, expecting the people to accept and implement them with no questions asked. Conservation educators should not hesitate to alter any plan that fails to include consultation with the people in their program. The people who are to ultimately be motivated by the education program should participate, themselves, in developing the solutions. This holds true whether these people are government officials who can put a resource management plan into action, extension agents who teach soil conservation to farmers, or villagers who are going to be planting community woodlots.

People are far more likely to be committed to implementing a solution if they have helped to define it. First, they generally stand behind something they feel is their own. Their input can ensure that technical solutions reflect their needs, concerns and traditions. Without this input, solutions are rarely implemented successfully. Second, the people to whom the education program is directed know a great deal about local environmental conditions. Frequently there are good reasons why they treat the environment and its natural resources as they do. Specialists working on environmental projects should always take this knowledge into account.

EXAMPLE

A reforestation effort might provide trees that supply firewood, forage for livestock, fruit, lumber, or shade. What do the people who will be planting, caring for, and harvesting the trees want? If they want firewood, do they prefer any particular tree species? In one African country, a scheme to encourage villagers to plant cashews failed because the people who were to plant them believed cashew groves harbored ghosts! No one had asked the villagers for their views on what trees to plant. Participation by the people who are to implement plans can prevent such miscalculations from occurring.

Technical solutions to be advocated by the education program need not be considered fixed for the lifetime of the project. As events unfold, other more practical or useful solutions may appear. Natural resource managers may identify more environmentally-sound measures, the technical solutions may prove incompatible with people's customs and beliefs, fewer or greater resources than anticipated for the education program may appear. Whatever

happens, it is critical that the education program be prepared to offer solutions to the environmental problems identified. Only now is the conservation educator equipped to plan the program's target audiences, content, means of communication, and evaluation criteria.

CONCLUSION

Conservation educators want to change how people deal with their environment. To do this effectively, they need to define the most critical environmental problems and what people specifically can do to resolve them. In doing this, the educator defines the goals for the emerging conservation education program, and can select the program's target audiences, content, and methods. The program has an anchor to prevent it from drifting into issues that will detract from its purpose and reduce its impact.

QUESTIONS TO REVIEW WHEN ASSESSING THE ENVIRONMENTAL SITUATION:

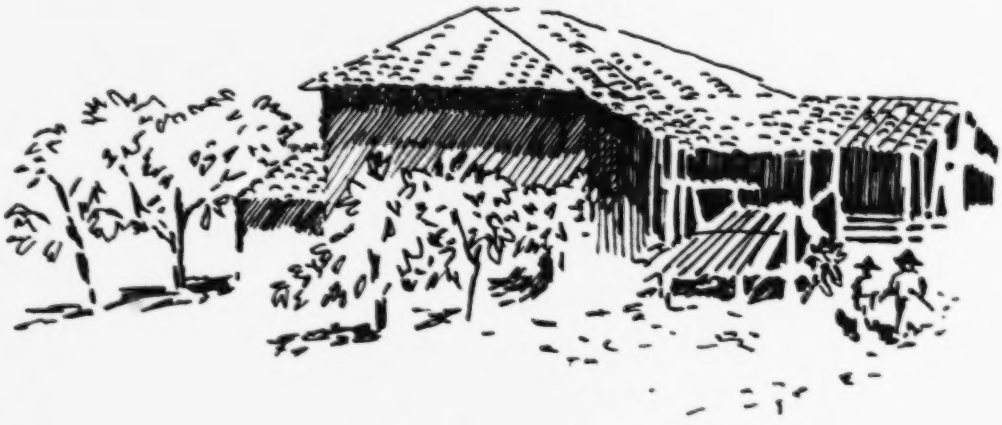
Below are some questions to consider to help ensure that an environmental problem and likely solutions for a conservation education program have been identified.

What are the main environmental problems confronting the region?

- **What is the scale of the problem?**
  - Local - contained within a particular community.
  - Regional - contained within a particular area, such as a watershed or province.
  - National - involving all areas of the country.
  - International - involving resources which cross borders.
- **Is it practical to consider addressing the problem?**
- **What is the cause of the problem?** Try to determine why it is occurring. Does the problem involve ignorance, satisfying basic needs, a desire to generate income?
- **How seriously does the problem affect people?**
- **How seriously does it affect the environment?**

Are there feasible technical solutions to the problem?

- **What resources are needed to carry out solutions?**
  - How much money is required? Where can it be obtained?
  - How much labor and expertise are needed? Are personnel willing, available, and adequately trained?
  - What supplies and materials are needed? Are they available locally? If they must be obtained in another location, is there enough time and money allocated for the task?
  - How long will it take to implement a solution?
- **How can these resources be obtained?**
- **Have those affected by the problem been involved with developing a possible solution?**



STEP II. IDENTIFYING THE AUDIENCE

Once the environmental problems to be dealt with have been defined, the people who will actually implement their solutions must be identified. These people will be the education program's target group. In identifying these groups, the conservation educator must consider not only the people directly involved in the problem, such as the farmer worsening the soil erosion or the hunter overharvesting wildlife, but also the community members who can influence these people as well. It may be necessary to go beyond farmers, for example, to reach government officials, the general public, or community leaders. There may, in fact, be several potential target groups and the most obvious may not always be the most appropriate. Indeed, an education program may best be focused on several different audiences.

An education program cannot be expected to produce results if directed at the wrong people. The target groups of a conservation education program must be able to:

- contribute to an environmental problem's solution; and,
- perceive the changes advocated by the education program as being in their own best interest.

AUDIENCES FREQUENTLY TARGETED

Groups frequently targeted by conservation education programs include:

People Directly Affecting Natural Resources

This is usually the easiest group to identify. For example, they can be seen cutting down trees, overharvesting fish and wildlife, misusing pesticides, and neglecting to use soil conservation measures. Unfortunately, they are frequently cast as the primary villains on the environmental scene, even though they often are aware of no alternatives to doing what they do.

Extension Workers or Resource Management Educators

People who work for forestry, agriculture, or other national extension services do not harvest natural resources themselves, but introduce new products and techniques to those who do. Involving extension workers in education efforts can maximize the program's impact, since these workers reach many people. They can also effectively establish communication between community residents and government officials.

Local Leaders, Government Officials

Government officials and local leaders affect environmental management both by passing and enforcing laws and by initiating and supporting projects that affect natural resources, for better or worse. To deal effectively with this group, the conservation educator needs to determine the funding, interests, official mandates, and environmental impact of government personnel and agencies.

Influential Community Members

These people can be members of a political party or respected community residents. Since the people the educator wants to influence will often follow the example of informal community leaders, these people can be a very productive target audience.

The General Public

This group is most often the target of environmental education programs, but often because of convenience, not potential impact. Directing a program at this group does not require the detailed community knowledge that a more narrowly targeted program demands. A public appeal can be extremely effective, especially in creating interest for more detailed conservation education programs, but the educator should have a specific reason for directing a program at the general public rather than at a target group.

Schoolchildren

Conservation educators often address this group, hoping to create environmentally responsible adults. This is always a desirable goal, but may not be the first priority. Teaching students is an investment in a country's

future, but the conservation educator may easily discover that the country's present environmental problems are so serious that they require attention first.

Sometimes, however, school conservation education programs can pay immediate environmental dividends. For example, students in rural areas who drop out of school early to work on family farms might be taught basic soil conservation and reforestation techniques. In urban areas, school conservation education programs can sometimes attract wide national attention to environmental problems. School conservation education programs can also involve parents through school field trips and tree planting, litter clean up, and other community campaigns, in effect supplementing adult education services.

THE LIMITATIONS OF EDUCATION

After identifying the audiences most likely to contribute to solving the environmental problem, the conservation educator must determine which of these possible groups can perceive the program to be in their best interest. Education changes people's behavior through logic and common sense. Its use is based on the assumption that people will do what they think will most benefit them. When people must be convinced to do something not in their best interest, education is not the tool to use. Law enforcement, financial compensation, or social pressure might be.

EXAMPLE

In Somalia people living in the Luuq refugee camp in January, 1984, had cut so much firewood that the land around the camp had become a baking and barren desert. Women had to walk long distances to gather the wood they needed. Relief workers and the Somali forestry department were working with the refugees to reforest the area, yet the refugees had to be paid to plant trees. Why? Because the refugees had no idea where they would be in five years when the trees would be ready for harvesting. Here, then, payment, not education, was the way to motivate people.

IDENTIFYING THE NEEDS OF THE AUDIENCE

Often, the people closest to an environmental problem are least able to alter their actions. If people need fuelwood, they will harvest trees even if their actions are detrimental to this natural resource and the community that depends on it. Thus, for example, to convince the farmers to not overharvest wildlife and trees, the conservation effort must present practical alternatives that meet the farmer's needs.

The effort might be directed at community leaders who can provide the farmers with financial incentives to plant trees, or at neighbors being harmed by the farmers' actions who can pressure leaders to provide alternatives. All audiences - politicians, schoolchildren, business people, farmers, and others - have particular needs and interests. Only education programs that take these into account will change their audiences' behavior.

EXAMPLE

Fundacion Natura, a non-governmental environmental organization in Ecuador, has developed one of the largest and most effective environmental education programs in Latin America. In large measure, it became successful by focusing on priority environmental problems and by carefully selecting target groups capable of solving them. Although many of Ecuador's environmental problems involve people in rural areas, Natura has concluded that government support and participation are critical for resolving the problems.

Natura has developed slide programs on environmental issues to show to small groups of government officials in various ministries, followed by questions and discussions. Natura also has communicated with the general public through television and radio programs describing Ecuador's environmental problems and their solutions. In this way, Natura has successfully encouraged a public mandate for sound environmental policies.

CONCLUSION

Conservation education has an environmental impact by changing people's behavior. In every situation, some people have a greater environmental impact than others, and the educator needs to identify these people if the conservation education program is to be successful. The conservation educator can waste a good deal of effort trying to educate inappropriate audiences.

QUESTIONS TO REVIEW WHEN IDENTIFYING THE AUDIENCE:

The following questions should help in selecting audiences:

- **Who is directly affecting the natural resources under consideration?**
- **Is it in their interest to change their behavior?**
- **What will convince them to change their behavior?** (education, law enforcement, government policy, social pressure, financial incentives)
- **Who is most affected by the degradation of the natural resources under consideration?**
- **Who will benefit from the implementation of the measures advocated by the educational program? Can these people play a role in getting the measures implemented?**
- **Are there influential community members who can help convince people to change?**
- **Are there influential community members who can provide incentives for people to change?**
- **Does the environmental solution require government action?**
- **Which government agencies can contribute to solving the problems? How?**

STEP III. IDENTIFYING THE MESSAGE

Careful selection and organization of a conservation education program's content is crucial for its success. But this is often a challenge because there frequently is abundant information that can be presented. It is easy to be led off on tangents by information that is interesting or that somehow pertains to the environment. The conservation educator must be selective, choosing only the information that will bring about desired changes in environmental behavior. The educator's programs need to confront environmental problems head-on, unencumbered by excess information baggage. The guidelines below may help develop such programs.

PLANNING THE PROGRAM

The first step is to learn why people need the education program.

1) Are they aware the environmental problem exists?
2) Are they aware of the problem but not how they are connected to it?
3) Are they aware of the problem and their relationship but not of any solution?
4) Are they aware of the problem, and solutions, but not motivated to take action?

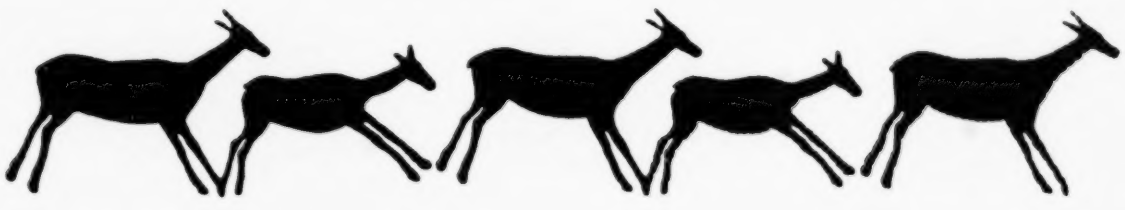
1) Audience's Awareness of the Problem

Wherever the educator begins, it will be necessary to move the audience beyond awareness, to motivation, in order to obtain positive results. Encouraging people to resolve an environmental problem will be futile if people are not convinced that a problem exists and that it affects them. If people do not understand their relationship to the problem, they may easily implement inappropriate solutions.

For audiences who need awareness, the education program should be straightforward, simple, yet informative, concentrating on catching people's attention. Accuracy is crucial and should never be sacrificed to appeal to public emotion. The effort can backfire if the information is perceived as being inaccurate or sensationalized.

2) Audience Responsibility

People's general awareness of an issue should be developed into an understanding of how they are both affected by and are affecting the environmental situation. The environmental problem should always be related to the audience's particular interests. For example, firewood shortages and



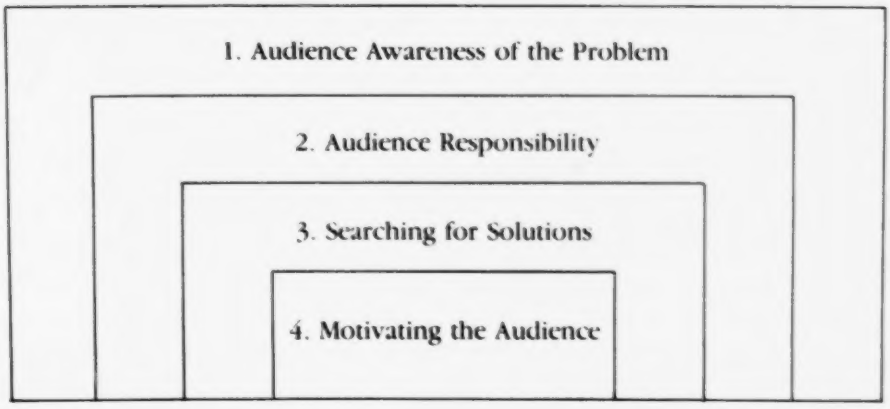
flooding of residential areas might be presented to villagers as the consequences of the deforestation of a watershed. The disappearance of rare bird species and the loss of scenic beauty that also result from deforestation might be of less concern to this audience. Knowledge of the target audience becomes critical. Problems must be presented so that they have an impact.

3) Searching for Solutions

Here many programs fall short of their intended goal. People must clearly understand how to help solve an environmental problem and the educator should try to show them. It is counterproductive to generate people's concern about an environmental problem and then abandon them. They can become frustrated, apathetic, and may even refuse to participate in later, perhaps more constructive, attempts. Environmental solutions can be as simple as requesting children not to throw candy wrappers on the ground, or as major as recommending that farmers change their planting and plowing methods. Whatever the solutions, education programs must identify them and present them in a way that relates to the audience's interest and that points out their long-term benefits.

4) Motivating the Audience

If the audience is not motivated to implement the solution, then the educator must find out why. There are many reasons why people will not do something that appears to the outsider to be clearly in their best interest. The proposed action may not be seen as beneficial. Reluctance may be due to religious taboos, traditional customs, or political discord. Perhaps the leaders, official or otherwise, are not trusted by the people. A solution may have some serious flaws clearly perceived by the community but not by the



IDENTIFYING THE MESSAGE

Planning the Program

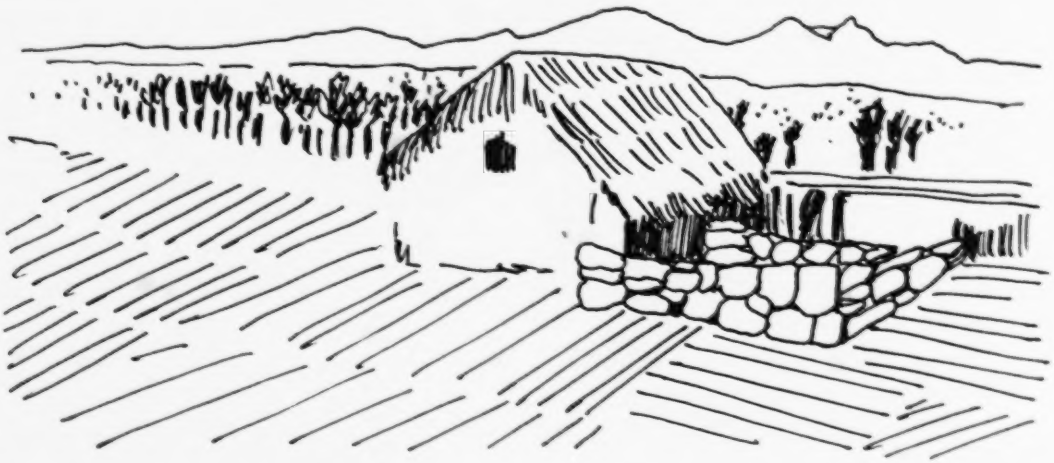
resource management specialists who developed it. If there appears to be no logical explanation for people's negative reactions, the process and assumptions which led to the selection of the particular solution should be examined. One very likely possibility is that the solution being advocated was developed without sufficient local participation.

TOOLS FOR IDENTIFYING THE MESSAGE

There are various approaches to assessing the most effective way of moving the audience to a commitment of treating the environment with respect. Questionnaires are the easiest and the least expensive, but do not allow for follow-up questioning. Interviewing is more time-consuming, but is more flexible. The best way to learn what people are thinking about an issue is to spend time living with them. Although this does not provide concrete data, it does give the educator an understanding of what is important to the people who will participate in the education program. Obviously, the reliability of one's conclusions, in the absence of quantitative information, depends entirely upon the sensitivity of the educator. With a truly perceptive educator, however, this technique can lead to an accurate and profound appraisal.

Using questionnaires or interviews, the educator must be sure to present the questions so that responses are unbiased and accurate. It is very easy for the language of a question to lead to a particular conclusion. For instance, suppose an educator wants to determine whether people fully appreciate the value of a mangrove forest. An unbiased question would be, "Do you think mangroves are valuable? If so, please list why, if not, list why not."

A biased question, on the other hand, would be "Do you think the trees are ecologically important" or "Do you think fish benefit from living near mangrove swamps?" Any one could easily assume the right answer to both would be "yes" because if it were not, the interviewer would not have asked the question. The person answering would especially be inclined to the affirmative if the questioner were a biologist or conservationist who had been conspicuously poking around the mangrove swamps with a lot of expensive equipment.



EXAMPLE

Bill Weber and Amy Vedder received a research grant from the New York Zoological Society in 1977 to study the problems hindering the conservation of the mountain gorilla and its forest habitat in Rwanda's Volcanoes National Park. Amy studied the gorilla's ecology, while Bill looked into local people's attitudes about the gorilla and its habitat. Any gorilla conservation measures would need local residents' cooperation.

Bill quickly discovered that he could not get unbiased answers from the Rwandans living near the park. This was because Bill's presence in the area and interest in the gorillas led the residents to assume that there must be some value in the gorillas. They easily guessed Bill's attitudes and they tended to match their answers to them. Therefore, Bill hired Rwandan students at the national university and local teachers to interview the local residents.

The results from the survey showed that people saw no value of the forest or its wildlife beyond harvesting the trees or animals. In fact, the forest's presence ensured a reliable supply of clean water, and the gorillas helped the region financially by attracting foreign tourists.

Having determined what people needed to know, Bill and Amy developed an education program. They employed a variety of techniques, including town meetings, school programs, and slide shows. By 1984, a survey showed that fully 80% of the people in the region now recognized that the forest and its wildlife were valuable for other reasons beyond the products they provided, versus only 35% four years earlier.

SELECTING THE PROGRAM'S CONTENT

After identifying what the target audiences need -- general awareness, practical guidance, motivation, or a combination of all three -- the following process can be used to help ensure that the education program fills this need. An example of a conservation education approach that encourages reforestation is provided to illustrate the process. The process can also be used to address more complex problems such as the loss of agricultural lands due to urbanization or colonization of national parks.

1. Write a *problem statement* that describes the environmental issues to be addressed by conservation education.

The first step is to have a clear and concise statement of the environmental problem the program is intending to address. The issue can be as broad as the absence of a public conservation ethic or as specific as eroded hillsides that require reforestation.

EXAMPLE

People are cutting down trees in the vicinity faster than they can grow back. The consequence is a growing fuelwood shortage, which has caused hardship. Women and children who collect the wood must now devote practically an entire day to collecting a load of wood. In the process, they often enter government-protected forest lands to illegally cut trees. This deforestation has also harmed the environment in other ways; with the vegetation gone, the soil is blowing away and the wildlife has disappeared.

2. Prepare a *rationale* for the proposed conservation education program.

The rationale explains why time and resources should be used for the education program, and serves as a reference point for developing specific objectives.

EXAMPLE

Because people need wood, the solution to deforestation is not to limit the fuelwood that people harvest, but rather to establish fuelwood plantations and develop energy conservation techniques. Town leaders are the key to planning and developing a solution based on planting trees. Once they are motivated, they can organize and inspire the community effort.

3. State the program's *goal.*

The rationale explains why a conservation education program is needed; the goal statement explains what the program intends to accomplish. This statement should be based upon whether awareness, guidance, or motivation is needed. It should clearly describe the desired outcome of the effort, without being so general that it could pertain to any conservation education program.

EXAMPLE

This program is intended to give practical guidance and provide motivation for the town leaders on how to establish village woodlots and employ energy conservation measures.

4. Develop the program's *intended outcome.*

The program's intended outcome includes whatever people need to learn so that the program's goals will be realized. This can be facts, ideas, principles, or skills, and be as concrete as knowing how to put a tree in the ground, or as intangible as wanting to protect a sea turtle nesting beach.

To determine a program's intended outcome, simply ask: what do people have to understand and believe in order to change their environmental behavior? In the beginning, it may help to simply jot down a list of all possible subjects as they randomly occur. Then go over the list and ask what will produce the desired response and what will distract. This list can then be refined and edited so a progression appears logical to the educator: For example, town leaders should:

1) Know how deforestation is causing soil erosion.
2) Understand how soil erosion reduces crop yields.
3) Recognize how planting trees can reduce soil erosion.
4) Learn that fast-growing trees can provide fuelwood in five years.
5) Be able to select which tree species can most benefit the town.
6) Learn how to maintain and protect the trees and who is best suited to do this.
7) Understand that improved woodstoves can reduce fuelwood use and thus conserve wood.
8) Learn how to operate woodstoves.
9) Know where to get tree seedlings and woodstoves.
10) Want to plant woodlots and use more efficient woodstoves.
11) Identify the factors that will motivate the villagers to maintain the woodlots.

Using this process, the educator converts environmental and social knowledge into an educational tool. By stating what needs to be done and why, and listing what can be taught, the program can fit the environmental problems at hand, not the educators' own interests. Note that the list need not include such ideas as the structure of a tree or the process of photosynthesis. These are relevant to the topic but not to the audience's needs or the objective of the program. The framework keeps the program on track.

5. Look for *motivating factors.*

To accept unfamiliar ideas and knowledge, people need to adjust their attitudes and beliefs. For most individuals this is very difficult. Therefore, a conservation education program that can fit with people's prior attitudes or values is more likely to be successful. For example, if fuelwood shortages and flooding of residential areas are already of concern to villagers, that concern can be the basis of a program to address deforestation.

In Haiti, intensive efforts to motivate farmers to plant trees on badly-eroded hillsides have largely failed in the past. Anthropologist Gerald Murray discovered that this was because the farmers' primary concern was maximizing profits. Farmers had been paid to plant seedlings, but not to take care of them. Murray recommended that project personnel simply make it clear to the farmers that planted trees could be a profitable cash crop. The Haiti Agroforestry Outreach Project, funded by USAID and administered by the Pan American Development Foundation, CARE, and Operation Double Harvest, put Murray's suggestions to work. The result: from 1981 to September 1984, more that 21,000 small landholders were caring for trees planted on their farms.

Of course, people's concerns are not always economic and utilitarian, and the educator should be alert to other interests. The desire for status and respect, for example, can be a powerful motivator. National pride is

often a useful attitude upon which to base change. People who have no prior interest in nature or outdoor activity may become motivated to preserve natural areas because these areas represent a unique national heritage admired by both nationals and foreigners.

Man and the Biosphere Reserves, World Heritage Sites, International Union for Conservation of Nature's National Conservation Strategies, and the World Wildlife Fund's J. Paul Getty Conservation Award are only a few examples of international recognition being given to conservation initiatives. As global understanding of environmental issues increases, conservation efforts once unrecognized are now receiving international acclaim, confirming prestige to both the individuals and nations involved.

6. *Organize information.*

People try to fit facts into context so they make sense and can be remembered. They do not form attitudes solely by retaining isolated facts. As anyone who has studied for an exam at the last minute knows, rote memorization only works in the short term. Thus, broad concepts should first be presented to learners so they have a framework in which to incorporate further information. For example, using the case of deforestation, town leaders are unlikely to benefit from a conservation education program that starts off presenting botanical data. This is useful information that could enable the leaders to better care for tree plantations, but the leaders will most likely have forgotten this information by the time they start such woodlots.

A better approach would be to begin with a general concept of reforestation -- what it is and why it should be done. A program should be structured so that the learners move from more general to more specific information, from the "big picture" to the smaller details. Leaders should be advised where they can get further information and help when the time comes. Not everything can be learned at once, so ongoing information programs would be helpful at later stages.

CONCLUSION

The conservation education program is now beginning to take on substance. At this point, the conservation educator can decide what a program's content will include and exclude, based on the considerations discussed previously. The planning process includes writing a problem statement, a rationale, a goal statement, and a list of intended outcomes. This effort can keep a conservation education program focused on the environmental problem at hand and prevent the educator from becoming distracted by peripheral issues and irrelevant information.

QUESTIONS TO REVIEW WHEN IDENTIFYING THE MESSAGE:

- **What environmental problem will the conservation education program be addressing?**
- **Why should the program be directed at this environmental problem, instead of others?**
- **How can the conservation education program lead to the resolution of the environmental problem?**
- **What are the intended target audiences for the education program? Why should they receive the program's attention at the expense of other possible groups?**
- **What knowledge and attitudes must the target groups have in order to be able to effectively contribute to solving the environmental problem? Does the program include this information?**
- **What information has been gathered about the audience's beliefs, customs, level of education?**

STEP IV. SELECTING AN EDUCATIONAL STRATEGY

Many educational strategies can be used in conservation education, ranging from posters to forestry extension programs. At this point, conservation educators need to beware of falling into one particular trap: the tendency to implement a strategy because it is familiar, not because it is most effective. Thus conservation educators who have worked in schools might immediately set about designing a school curriculum without considering whether farmers or government leaders would have a greater environmental impact than students. Conservation educators, however, are more likely to be successful if they carefully consider all the possible strategies available before implementing any.

Conservation educators should not generally rule out potential strategies because of a lack of experience using them. Educators can often adapt, or they can find people with the necessary skills to help out. The objective at this stage is to communicate as clearly as possible with the audiences selected earlier. Every effort should be made to use the strategy that does this best.

Many different educational approaches have been used around the world; it is also quite possible that a conservation educator can develop an entirely new strategy that has not yet been applied to conservation education. The strategy, after all, should fit the situation, and the conservation educator might very well be addressing a situation with a unique combination of environmental and social characteristics.

CONSIDERATIONS IN SELECTING A STRATEGY

A Conservation education strategy should do two things: 1) reach the program's target audiences and 2) effectively communicate the program's information. There are several factors to consider when selecting an appropriate strategy:

- How do the target audiences receive information? Can any existing communication mechanisms be used in the conservation education program?

- Who are considered reliable community leaders, role models, and conveyors of information?

- Is the message to be communicated short or complicated? Will the education program be long or short term? How literate is the audience?

- Who is available to carry out the educational program? How much time, training, and direction do they need?

- How much money, equipment, and other resources are likely to be available? Are there any outside agencies able to provide these resources?

- Have other educational strategies been directed toward the audiences the educator intends to reach and have such experiences been documented?

- Does the mandate of the educator and the organization represented restrict any of the available options?

COMMONLY USED STRATEGIES

Depending on the answers to these questions, an education strategy appropriate for both program content and audience can be chosen. A number of widely used strategies are described below.

1. EXTENSION PROGRAMS

Extension programs are usually designed to teach adults specific methods for improving health, agriculture, and forestry; extension workers carry their messages to individual homes or organizations of homemakers, mothers with young children, farmers, and others.

Extension programs are sometimes the only available means for effectively presenting substantial amounts of environmental information to adults. To show a farmer how to plow on the contour, plant fast-growing trees, or apply a less harmful insecticide on the land, a conservation educator will almost always have to work individually with the farmer, most likely in the field and usually more than once. The only educator available in most countries to do this work is the extension agent.

In the Philippines, for example, farmers were asked to plant trees on their land, and they were paid as compensation for the land thus taken out of agricultural production. They were encouraged to take seedlings, but there was no guarantee they would plant them. The program had no education component, and the farmers were not motivated to care for the trees. Fortunately, this was recognized early, and the Philippine government hired extension agents to visit the farmers and educate them about the planting and care of the trees. The money spent subsidizing the tree planting would likely have been wasted if the extension agents had not been involved.

Audience

Individual adults or groups of adults with common interests.

When Appropriate

When the information needs to be adapted to specific situations and to be demonstrated through personal contact with target groups over time.

Strengths

Extension programs are generally the most effective means of communicating large amounts of information to adults. While other educational approaches can increase people's awareness, extension programs are often needed to provide practical answers. For instance, the mass media can highlight such topics as soil conservation, forest and wildlife management, and insecticide use, but someone will probably still have to come out to the farmers' homes and demonstrate how these concepts can be applied.

Well-trained and motivated extension agents understand the people with whom they work. They know both the technical subject matter and how to present it, as well as how to develop an understanding of their communities. Thus they can tailor their efforts to fit their audiences.

Weaknesses

Because one extension agent reaches relatively few individuals, and typically spends a good deal of time with each client, extension programs are comparatively expensive. Agents may be poorly trained, paid, and motivated. Extension services are frequently understaffed, and unable to provide adequate transportation, teaching aids, and on-the-job technical training. All of this can be crucial, because an extension program's success depends on the extension workers' commitment, skill, and ability to get to the people they are expected to serve. Often, extension workers receive their training in the capital city and acquire information that is not useful to rural communities.

Implementation

- Get support from officials at all appropriate levels of the extension organization - national, regional and local. Sometimes extension programs do not exist, so a great deal of time working with appropriate government officials will be required.

- Conservation educators can develop extension programs in several ways. Some possibilities:

    - Train extension agents; organize, present, or find financing for workshops; write training materials.

    - Prepare teaching aids for the extension agents to use: slides, displays, coloring books, posters, etc.

- Help extension agents to coordinate their effort with other entities, e.g., with schools, private conservation organizations, and mass media.

2. SCHOOL PROGRAMS

In schools, environmental concepts and practices can be taught as environmental studies classes, but they are more commonly integrated with other programs, such as science or social studies. In addition, in many communities, schools can also be used to communicate with adults as well as children. Not only can students share information learned at school with their families, but school activities can also involve the entire community. Such activities might include tree-planting and litter cleanup campaigns and demonstrations or exhibits on deforestation, pollution, soil management, and wildlife.

Furthermore, local professionals, such as extension agents, foresters, national park guards, health officers and others can be invited to schools to participate in conservation education programs. This gives them a chance to spread their message and may compensate for the teacher's sense of inadequate preparation in a particular subject.

Audience

Children of all ages, both rural and urban backgrounds; also. the families of the children and the communities where the schools are located.

When Appropriate

When students can apply the message immediately or will eventually be called on to make environmental decisions. When the material is simple enough to be taught by teachers untrained in environmental management and to be easily understood by students. When school activities can constructively involve the rest of the community.

Strengths

School programs can involve a large number of students over many years; complicated concepts can be gradually presented. A conservation ethic can be instilled while students are still forming attitudes and values. Schools can also be used to reach adults.

Weaknesses

School children are often too young to help solve present day environmental problems. Consequently, when problems require immediate attention, educating students with an eye to their future environmental impact may not be the educator's top priority. A gap may exist between the time when students learn something and the time when they have a chance to apply it; they may thus forget much of what they have learned unless the environmental concepts are repeated in different grades. A school program may be effective only when combined with an adult extension program that builds on what the schools have taught. Some school programs have little flexibility and limited time in the school day, and lack resources - human and otherwise - for such programs as tree-planting and soil conservation.

School programs can require a great deal of time and effort to prepare. Curricula must be developed, approved, and financed; materials must be printed, and teachers must be trained in their use. It can be very difficult to convince poorly supported rural teachers to do additional work without some compensation.

Implementation

- Analyze the existing curriculum. Can a conservation education program be developed as a separate entity, or can it be incorporated into existing programs?

- Obtain Ministry of Education support for the curriculum; keep officials informed of the program's progress. Ultimately, they will decide whether to implement the curriculum at the national level.

- Involve teachers in the curriculum's development to ensure their commitment and to enable teachers to contribute additional insights.

- Test in schools to find out how teachers and students react, and what materials they need.

- Evaluate and revise the curriculum.

- Train other teachers to use the curriculum.

- Print and distribute the curriculum. In countries where textbooks are scarce, every effort should be made to use cheap materials like newsprint or mimeograph paper.

It is tempting to use existing curricula from other places, and adapt them by changing the place, names, and the plants and animals cited. But the

concepts in foreign curricula are often irrelevant in different settings. Teachers should be given the chance to review and organize relevant information to meet their community's needs. The process of designing a curriculum from scratch may be as important as its eventual implementation.

3. CLUBS AND NON-GOVERNMENTAL ORGANIZATIONS

Various kinds of clubs, including non-profit organizations, professional societies, and adult and youth groups, can carry out environmental activities. Among other things, they can plant trees, start litter campaigns, study environmental problems and recommend solutions, lobby for environmentally responsible policy, educate the general public on environmental issues, and provide funding for natural resource management projects. Thus, conservation education often is productive when directed at making private groups interested in environmental management.

A wide variety of clubs and organizations can be effective. Some can be formed solely to further conservation goals, such as natural history societies, outing clubs, conservation associations, and groups which provide volunteer assistance in managing underfunded national parks and reserves. Other organizations, such as the Lions Club, Rotary Club, and Chamber of Commerce, have become effectively involved in conservation along with their other interests. Agricultural and rural development cooperatives are often organized to implement environmental projects. Youth groups like Boy Scouts, Girl Scouts and agriculture clubs can carry out a broad range of conservation activities. The extraordinary African Wildlife Clubs of the Sudan, Uganda, Tanzania, Zambia, and Kenya feature an impressive array of creative educational activities for young people.

Audience

Organization members of all ages and with a broad range of interests, objectives, and capabilities.

When Appropriate

When a recognized need can be addressed by a particular group.

Strengths

Because of their diversity, private organizations can effectively contribute to conservation in a number of ways. People belong to such groups because they are committed and enjoy volunteering their time to carry out their activities. Thus, if a conservation education program can help an organization meet its objectives, the conservation educator can count on motivated members who are willing to work on effective projects. Frequently, such organizations have evolved because a group of citizens has recognized the need for them. Citizens' groups are often aware of social and cultural factors influencing environmental problems and are thus unusually capable of implementing effective environmental programs.

Youth clubs can usually pass on more conservation information to their members than schools because they do not have the general education responsibilities and limitations that schools do. Consequently, they can be more flexible. Youth club leaders can also be very highly motivated.

Weaknesses

Money is often in short supply. While volunteerism may be a strength, it can also cause certain problems. For example, long-term conservation programs that require continuity may suffer if members lose interest. Also, an effort must often be made to make conservation projects enjoyable, which can compromise program goals. Finally, when environmental problems are controversial, conflict can result among members. Groups that react emotionally to environmental issues are, in the long run, counterproductive because they lose their credibility and may easily advocate inappropriate environmental solutions.

Implementation

- Work with well established groups, if possible, because this requires a minimal commitment of resources. Members are already used to drawing on their own resources to support activities and can be quite resourceful in developing materials and raising funds.

- Start new organizations, if necessary, but consider how costly in time and money this is. First, it must be clear to potential members that organizing themselves to become involved in conservation will be a rewarding use of their time. Non-profit organizations sustain themselves on the commitment of their staff. Groups created by an outsider for a specific need often fail after the need is addressed. Conservation educators should not try to force new groups to form, but should try to build on already existing commitments. Time must also be spent developing infrastructures, policies, and procedures before newly-formed clubs can get involved in conservation programs. Volunteers, by nature, are resourceful if highly motivated.

4. MASS MEDIA—TELEVISION, RADIO, NEWSPAPERS

Conservation educators can often find a newspaper or radio or television station willing to collaborate on in-depth educational programs. Both government and privately-owned mass media frequently present programs including:

- Radio or newspaper series directed at rural populations, covering such topics as health, child care, home economics, and agricultural techniques. Some try to entertain their audiences with the education message that is dramatized. These programs are often supplemented by extension workers.

- Weekly newspaper supplements that feature activities teachers can use in school. This is a very effective way of providing information when a shortage of school materials exists.

- Weekly columns on environmental topics.

- Contests. One Paraguayan newspaper printed daily a portion of some photo showing a species of the country's wildlife. The portions were cut out and pasted into a booklet provided by the paper. The first person to complete the booklet won a prize, and all contestants were eligible for a drawing for additional prizes. Each photograph was accompanied by a description of the animal. This way the newspaper sold copies, and the readers learned about the wildlife in their country.

In selecting a mass media communication strategy, the following questions need to be answered:

- How detailed and complicated is the information to be presented? How often will it need to be repeated?

- Will extension agents in the villages be required to expand upon the messages?

- What types of mass media reach the educational program's intended audience? Which newspapers do they buy? Do they have access to radio or television?

Audience

Large numbers of people throughout a country or region. Audiences can either be undifferentiated - the general public - or specific, like farmers, homemakers, or schoolchildren.

When Appropriate

The mass media are best at presenting general information that increases people's awareness. Special series, however, can treat material in more depth.

Strengths

Mass media can reach large numbers of people less expensively than any other method. Used creatively, mass media can effectively present information appropriate to a wide range of situations.

Weaknesses

Although the media can reach large audiences, there is no guarantee, as people can turn off their radios and televisions and fail to read the newspaper. The audience is passive rather than participatory. Presentations can be compromised at times if they have to keep audiences entertained to retain their interest. Detailed information must be parceled out slowly and simply.

Implementation

- Work closely with an employee of the organization chosen. The educator can provide the material to be presented; the technician can adapt it to media policies, purpose, and audience. Usually, media personnel consider such arrangements to help them meet their objectives of educating the public, or providing public services.

- Look for funding through cooperative arrangements with the media. Often, the educator will have to find additional financial support, especially when using television. Support can come from private business sources or from international aid organizations.

- Plan carefully because one small error can reach thousands of people and be difficult to undo. Prepare several programs in advance; a long lapse between presentations will lose audience attention and program continuity.

5. SPECIAL PRINTED MATERIALS

Special printed materials can effectively communicate conservation information in schools, extension offices, public meeting places, and in many other situations. Some can even be sold. For people with limited literacy skills, comic books and "photonovels" can be prepared. The publications can vary in length, substance, and quality, depending on the objective.

Audience

All ages, both literate and, when appropriately designed, illiterate.

When Appropriate

Brochures and books are best suited for communicating simple concepts to large numbers of people. They are most effective when supplementing extension and school programs, but they should stand on their own.

Strengths

Printed materials can inexpensively communicate information to a large number of people, and they can be referred to repeatedly at the reader's convenience. Unlike the mass media, printed materials can be designed for relatively small target audiences. Some types can be sold to raise money for other conservation efforts.

Weaknesses

Special publications depend on the reader's willingness to read them. Compared with mass media, the production of special publications costs the educator more money per person. If the educator produces publications independently, it will be necessary to find writers, cartoonists, photographers, layout artists, printers, etc.; as well as materials, printing facilities, and the money to pay for them.

Implementation

- Compare the relative costs and effectiveness of simple mimeograph publications with typesetting and color photos.
- Consider the system of distribution for the publications.
- Test materials on a small or more varied audience before producing in quantity.

6. EXHIBITS, DEMONSTRATIONS AND SHOWS

Exhibits can range from posters to museum-style displays, live animals, and nature trails. Films, slide shows and live presentations that incorporate parables, songs and dances may be used to reach an audience. The cultural environment of a country will help to determine whether oral means of communication or high-tech videos have the most impact. Exhibits and shows may be used in places dedicated to conservation, such as parks or nature centers, or they may be set up in schools, public buildings and town squares, even travelling from place to place.

Interesting exhibits, audiovisual programs, puppet shows, or field demonstrations can often grab people's attention and hold their interest longer than more traditional lessons and publications.

Audience

The general public or whatever group that frequents the place where the exhibition or show is being presented. Farmers, for example, might be found in a market place or an extension office. A non-profit environmental organization in Guatemala has a van that visits market places. They exchange environmental posters and educational materials for fresh produce. This activity has already resulted in recruiting 2,000 youth members for the group.

When Appropriate

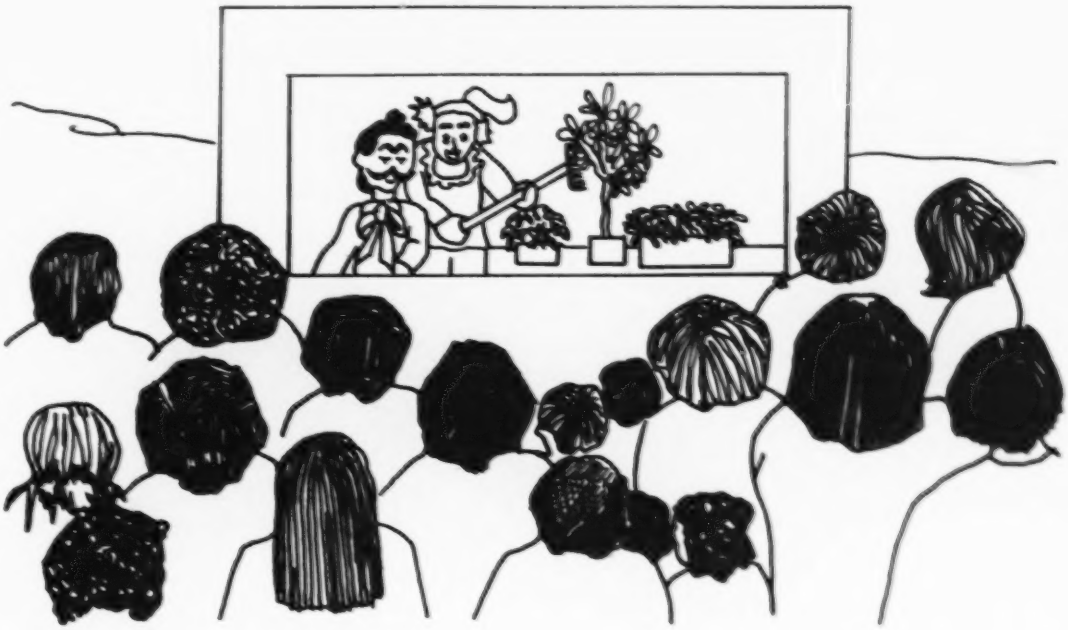
Exhibits and shows are most effective with simple messages and information that can be learned in one presentation. The audience will probably see the exhibit or show only once, but the presentation may be used in conjunction with school or extension programs.

Strengths

People are more receptive to information that is visually exciting, entertaining and clear. Local artists and communicators can tailor the show or exhibit to the audience. People are more likely to be convinced by something they have seen demonstrated than by reading about it. A show or exhibit that can be moved easily reaches more people in remote areas.

Weaknesses

For exhibits and shows to be effective, people must first come to see them and then leave with a better understanding. The educator has minimal control over who chooses to look or listen. Flashy presentations may only



lead to superficial impressions. Costs can be very high initially for specialists such as artists, photographers, technicians, and expensive equipment such as slide projectors. Maintenance may be required, especially when the show travels, forcing the personnel to spend a lot of time and gasoline bumping over the roads. The audience may not learn much from an exhibit or show without a follow-up program.

Implementation

- Try to get donations of material and talent to save on costs.
- Pay attention to the place chosen for the presentation because the location will determine the audience to a large extent.
- Be sure to get permission from the appropriate person when public areas are used for shows or exhibits.
- Involve local leaders to introduce the people in charge of the presentation.

7. SPECIAL EVENTS

Special events or campaigns, such as annual tree-planting days, wildlife weeks, and anti-litter campaigns can dramatically increase people's awareness of environmental issues. Special events focus efforts on a single topic. They can attract speakers, inspire rallies and conferences that capture media attention, and motivate schools and journalists to address a selected issue. What is more, the sense of importance and timeliness of an event can greatly enhance the possibility of people's participation. Impressive bursts of energy can appear when the time commitment is short, the publicity extensive, the goal worthwhile, and the enthusiasm of fellow workers abundant.

One example of a large-scale event is the U.S. National Wildlife Federation's (NWF) annual National Wildlife Week. Each year, a different topic is chosen as the focus of the week; recent topics have included soil, water, and U.S. public lands. To celebrate the event, NWF sends education kits, which include teacher activity guides and posters, to schools across the country. Public affairs announcements for television are also produced, usually with a celebrity as spokesperson. The Federation's magazines and press releases discuss the issue, while media events such as speeches and conferences are also held.

Audience

The general public.

When Appropriate

For increasing public awareness of a major environmental issue; people's participation by a certain date.

Strengths

Special events are very effective in rallying volunteer participation and in focusing the public's attention on selected environmental issues.

Weaknesses

The intensity of special events cannot be sustained for long. After a concerted effort, both program workers and audience will probably lose interest, energy, and commitment. The enthusiasm of volunteer workers may be replaced by a letdown feeling; thus, special events may make it more difficult to enlist volunteer participation in the future. Increasing public awareness only begins to change people's environmental behavior. Unless such events are followed by ongoing educational efforts, significant behavioral change will not likely occur.

Implementation

- Mobilize volunteer participation: people to give speeches, write press releases, make posters, contact friends in the government, attend rallies, and hold fund-raising events. An educator organizing a special event should expect to spend a good deal of time recruiting, organizing, and motivating volunteers.

- Consider the value of official patronage: more exposure for official national events. Government leaders provide endorsements, the services of their agencies, and perhaps even funds. With government sanctioned workers to help spread the word, and high-level officials to speak at rallies, official events are more likely to attract press interest.

- Plan subsequent educational efforts based upon the event to reinforce issues raised during the event.

8. MISCELLANEOUS MATERIALS

The conservation educator can sometimes send very simple messages using such imaginative gimmicks as bumper stickers, T-shirts, and buttons. In addition, some of these materials, like T-shirts, can be sold to raise money. Several conservation organizations, including the Association for Conservation of Natural Resources in Costa Rica, the Honduran Ecological Association, and the Paraguayan National Forest Service have successfully sold T-shirts advertising their mission. On the Caribbean island of St. Lucia, enough bumper stickers have been produced with the illustration of an endangered island parrot for half the cars on the island. Various countries have produced posters illustrating endangered wildlife. Fundacion Natura in Ecuador successfully collaborated with one of Quito's major hotels to produce table place mats for its restaurants which illustrate some of Ecuador's endangered plants and animals. In Guatemala, matchbooks and cereal boxes print environmental messages and illustrations of wildlife.

Audience

The general public.

When Appropriate

For communicating simple messages to increase people's awareness of environmental issues, events, and organizations or to raise money.

Strengths

The message may reach many people who would normally not pay attention to the environmental issue. When sold, the items may cover part or all of their cost or even raise money.

Weaknesses

The message that can be communicated must be very simple and can only be expected to increase people's awareness.

9. ONE-TO-ONE COMMUNICATION

The situation may arise when the conservation educator will have more impact educating carefully-selected individuals, rather than groups. Such a strategy is warranted when an individual can significantly influence the behavior of others. Both formal leaders, such as government or party officials, and informal leaders, such as respected community citizens, can qualify. Though government officials write and enforce laws, make policy, and organize community development programs, people will often follow the advice and imitate the actions of informal community leaders because they respect and trust them. To communicate effectively with these individuals, the educator will have to proceed as with any target audience: present the message so that it addresses the leader's interests and gets the information across. The educator may try to reach the group of people to which the targeted leader belongs, perhaps by using some of the strategies listed, or by simply speaking with the leader informally or socially. The effort may require one meeting or a series of informal contacts spread out over many months. Each leader and situation will be different.

Audience

Formal and informal community leaders.

When Appropriate

When one or a few individuals are the key to necessary change.

Strengths

Working with just one influential leader can affect the behavior of many people and generate a genuine commitment that will keep the individual involved over the long term. The costs are in time not materials. Once a leader has agreed to help, that person may become a productive ally for the

educator in organizing people, or in enlisting financial and logistical support.

Weaknesses

By focusing an effort on just one individual, success becomes dependent upon that one person's response. If the leader is not convinced or does not come through with promised assistance, the educator may have lost valuable time that could have been spent on broader approaches. An official also may move in the government hierarchy to a position less useful to environmental concerns.

Implementation

Be sure to accurately identify influential leaders, their potential effectiveness and learn how their opinion can best be influenced.

CONCLUSION

There are many strategies available to the conservation educator, and it is quite likely that more than one strategy will be able to contribute to each program. In selecting strategies, the following must be taken into consideration: the audience to be reached, the amount of information to be communicated, and the limitations on funds, time, and resources.

QUESTIONS TO REVIEW WHEN SELECTING AN EDUCATIONAL STRATEGY:

- **What will be the education program's targeted audiences?** Age, occupation, relationship to environmental problems?
- **How do the members of these audiences generally learn new information?** Newspapers, T.V., school programs, extension agents?
- **Is the educational message essentially promoting awareness and simple information?** Methods for this:
  - Mass media
  - Exhibits and shows
  - Brochures and booklets
  - Special events
- **Is the educational message primarily practical, offering the audience "How-To" information to encourage them to take special actions?** Methods for practical information:
  - Field demonstrations
  - Brochures, posters
  - Newspaper supplements

- Extension programs

- **Is the educational message to cover complicated concepts?** Methods for intensive information?

  - School curricula

  - Training workshops

  - Extension programs

  - Seminars, One-on-One Communication

  - Clubs

- **Is the strategy feasible given the situation's limitations?**

  - How accessible are target audiences? What is the available transportation and time?

  - What equipment is needed, and is it available?

  - How much money is available (or potentially available through outside grants)?

  - How many people are needed to carry out the program's strategies, and what skills do they need to have?

  - What organization or government restrictions do the programs have to heed?

STEP V. EVALUATION

INTRODUCTION

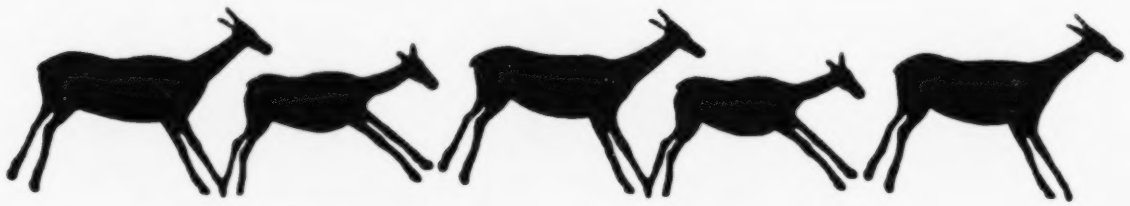
Evaluation should be carried out both while the education program is in progress and after the effort has ended. Periodic evaluations during the program enable the conservation educator to make mid-course changes and improve the program's effectiveness. Evaluating at the end of the effort can help both those involved and those working on similar efforts to improve programs in the future. Understandably, people are often reluctant to have their performance evaluated. Someone who has worked hard to accomplish something may prefer not to have an outsider come and criticize. Properly done, however, a program evaluation is not a personal critique. It is a tool to aid the worker and others to better accomplish their goals.

GUIDELINES FOR EVALUATION

The test of a conservation education effort is whether it has led to improved environmental management. A conservation education program cannot be considered successful unless it is reflected favorably in people's behavior. Sometimes, many years may pass before a program's effectiveness can be appraised, but the program's progress toward its goals can still be evaluated while it is being implemented.

Unfortunately, many people attempt to evaluate programs by simply evaluating the materials produced. The quality of a program's materials is critical, but should not be the only criteria for evaluating a program's success. Also critical is how well materials are contributing to meet the program's goal. A set of wildlife posters, for example, can be very attractive, and accurately displayed throughout country. They do not, however, represent a successful conservation education effort unless wildlife are being managed better. If the wildlife is still overhunted because people have been offered no alternative, then the posters have not addressed the reasons for the wildlife mismanagement. Posters would be attractive, but irrelevant.

Consider also the case of one conservation organization that wanted to help customs agents recognize endangered orchids being illegally transported. The organization sponsored a set of watercolor paintings of the orchids, which everyone agreed were well-executed and attractive. There was only one problem: most orchids are transported as rootstocks, not blossoms, so the paintings didn't resemble anything that the custom agents would encounter.



The first step in effective evaluation is the clear identification of the program's intended objectives. When the intended outcome is clearly outlined, it is easy to run down the list to check a program's progress.

Next, it is important to see if people have actually acquired knowledge, attitudes, or skills. Have farmers learned how contour plowing controls erosion, or why planting trees on the hillside is a good idea?

Often, it will not be possible at the beginning of a program to predict how long it will take to affect people's behavior or how many people must be influenced. Only one person plowing on the contour after the education program may constitute a reasonable success. Getting that first person to try something new may be the hardest part of the education effort; after that, others may follow suit on their own.

When it is too soon to realistically evaluate the education program's effectiveness in actually changing the audience's behavior, the educator should identify "benchmarks", or stages that can lead to behavioral change. In this way, progress is measured by moving along these stages. The four questions, under "Planning the Program", in Step 3: Identifying the Message, are useful stages to review in an evaluation. Following the questions, the educator should monitor a program's success in moving the audience along a continuum: awareness, understanding, motivation and finally action.

SOURCES OF INFORMATION FOR EVALUATION

Getting accurate data that reflect people's knowledge and behavior before and after the program will be a challenge for several reasons:

1. People can be reluctant to tell the evaluator anything that they feel he/she doesn't want to hear. For example, a farmer may not be using soil conservation measures because he does not believe they will work, but he might easily keep his true feelings to himself in order not to disappoint the educator.

2. People often do not want to admit something that would embarrass them. Someone may be illegally hunting animals because of the profits, even though the person knows that the welfare of the animal and others who use it will ultimately suffer.

3. People often do not know why they are behaving in a certain way, or they find it difficult to articulate.

4. Formal questionnaires and controlled interviews can provide accurate information, but may be difficult and time-consuming. Other sources of information may include written sociological accounts of the people, the accounts of people's friends and neighbors, informal gossip, and the educator's own sense for the people.

CONCLUSION

Evaluation is a vital, yet frequently neglected part of effective conservation education programs. It ensures that time, personnel, and funds are being used constructively and that the educator takes the time to listen and learn from the target audiences.

Evaluation criteria, the key questions for monitoring a program's success, should be identified before a program is implemented. This way evaluation can be an effective planning tool, rather than a necessary evil.

QUESTIONS TO REVIEW WHEN EVALUATING A CONSERVATION EDUCATION PROGRAM:

If the people are not using the measures advocated by the education program, these issues should be addressed:

If the message has not been communicated effectively to the target audience:

- Have the people not encountered the message? Review the educational methods to see if they have reached the intended audiences. Who came to the teaching sessions; who listened to the radio programs, or saw the posters delivering the message?

  Required:
  An adjustment in education method.

- Have the people not understood the message?

  Ask the people to answer questions that indicate their understanding of the material.

  Required:
  An adjustment in how the content is presented.

- Do the people not trust the educator or the agency represented? Ask counterparts or close friends.

Required:
Time or a change in strategy.

If they have grasped the program's material, but are not changing their behavior:

- Is there adverse social pressure? Do influential people distrust the educational program's message?

  Required:
  Include group applying social pressure as a target audience of the education program.

- Are the actions advocated by the education program unrealistic or economically unsound? Ask the people if they have doubts about the effectiveness of the measures advocated by the education program.

  Required:
  An adjustment of the technical solution.

- Are people nervous about the consequences?

  Required:
  (1) time, or (2) concentration of educational efforts on community leaders, or (3) change in education methods, perhaps to field demonstrations, or (4) financial or other incentives to encourage people.

If people are implementing the measures advocated by the education program, but the condition of the environment has not improved:

- Has the technical solution advocated by the program been inappropriate? What do outside experts say?

  Required:
  An adjustment in the program's technical solution.

- Has the education program reached people unrelated to the problem?

  Required:
  An adjustment in the program's target audience.

- Is more time needed to evaluate the situation? The effects of changing certain environmental practices often appear gradually.